

REMARKS

Claims 1, 9, 17, 25, 33, 41, 49, 56, 63, 70, 78, and 86 have been amended in this Request for Continued Examination to further patentably distinguish the claims over the prior art.

In general, thin film transistors of a display device, such as a liquid crystal display device, are formed over a glass substrate. However the manufacturing process of the thin film transistors has typically been performed at high temperatures, and it has thus been necessary to use "expensive" quartz as the substrate because glass with a low strain point is not suitable for the manufacturing process at high temperatures.

According to the present invention, it is possible to manufacture thin film transistors over a glass substrate with a low strain point because the manufacturing process can be performed at lower temperatures than the strain point of the glass substrate, and as a result, the manufacturing cost can be lowered.

It is respectfully submitted that these features are not disclosed or suggested, alone or in combination, by the prior art of record. Favorable consideration is requested.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon over a glass substrate;

crystallizing said semiconductor film; and

oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure higher than 1 atm in a temperature lower than a strain point of said glass substrate.

9. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon on an insulating surface;

crystallizing said semiconductor film; and

oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure higher than 1 atm in a temperature of 500 to 650°C.

17. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon over an alkali-free glass substrate;

crystallizing said semiconductor film; and

oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure higher than 1 atm in a temperature lower than a strain point of said glass substrate.

25. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon over a glass substrate;

crystallizing said semiconductor film; and

forming an insulating film adjacent to said crystallized semiconductor film by plasma CVD; and

forming gate electrodes adjacent to said insulating film,

wherein said method further comprises a step of oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure higher than 1 atm in a temperature lower than a strain point of said glass substrate.

33. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon on an insulating surface;

crystallizing said semiconductor film; and

forming an insulating film adjacent to said crystallized semiconductor film by plasma CVD; and

forming gate electrodes adjacent to said insulating film,

wherein said method further comprises a step of oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure higher than 1 atm in a temperature of 500 to 650°C.

41. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon over an alkali-free glass substrate;

crystallizing said semiconductor film; and
forming an insulating film adjacent to said crystallized semiconductor film by plasma CVD; and
forming gate electrodes adjacent to said insulating film,
wherein said method further comprises a step of oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure higher than 1 atm in a temperature lower than a strain point of said glass substrate.

49. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon over a glass substrate;

crystallizing said semiconductor film; and

oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure of 1 to 15 atms,

wherein said oxidizing the semiconductor film is performed in a temperature lower than a strain point of said glass substrate.

56. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon on an insulating surface;

crystallizing said semiconductor film; and

oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure of 1 to 15 atms,

wherein said oxidizing the semiconductor film is performed in a temperature of 500 to 650°C.

63. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon over an alkali-free glass substrate;

crystallizing said semiconductor film to be active layers of said thin film transistors at a pressure of 1 to 15 atms for electrically isolating said plurality of thin film transistors one another,

wherein said oxidizing the semiconductor film is performed in a temperature lower than a strain point of said glass substrate.

70. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon over a glass substrate;

crystallizing said semiconductor film;

forming an insulating film adjacent to said crystallized semiconductor film; and

forming gate electrodes adjacent to said insulating film,

wherein said method further comprises a step of oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure of 1 to 15 atms, and

wherein said oxidizing the semiconductor film is performed in a temperature lower than a strain point of said glass substrate.

78. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon on an insulating surface;

crystallizing said semiconductor film;

forming an insulating film adjacent to said crystallized semiconductor film; and

forming gate electrodes adjacent to said insulating film,

wherein said method further comprises a step of oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure of 1 to 15 atms, and

wherein said oxidizing the semiconductor film is performed in a temperature of 500 to 650°.

86. (Amended) A method of manufacturing a [semiconductor] display device having a plurality of thin film transistors, comprising the steps of:

forming a semiconductor film comprising silicon over an alkali-free glass substrate;

crystallizing said semiconductor film;

forming an insulating film adjacent to said crystallized semiconductor film; and

forming gate electrodes adjacent to said insulating film,

wherein said method further comprises a step of oxidizing the crystallized semiconductor film to be active layers of said thin film transistors at a pressure of 1 to 15 atms, and

wherein said oxidizing the semiconductor film is performed in a temperature lower than a strain point of said glass substrate.